Newsletter of the National Biological Information Infrastructure

nbii Access

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Groat Reflects on the NBII as He Looks to the Future

At the second National Biological Information Infrastructure (NBII) All-Node Workshop, held July 10-12 at the University of Tennessee-Chattanooga, Dr. Charles "Chip" Groat, Director of the U.S. Geological Survey (USGS), offered his "Vision for the NBII" (the NBII is a Web-based program coordinated by the USGS that provides access to data and information on the nation's plants and animals). We thought that Access *readers might find Dr. Groat's remarks of interest. Excerpts of his address follow.*

As this year opened, the USGS received a report from the National Research Council that looked across the USGS and gave us some advice on what the future goals and challenges for this organization are. *Future Roles and Opportunities for the U.S. Geological Survey*, the title, said a lot about this organization – what it has been, what it is, and what it can be.

Dr. Charles "Chip" Groat (photo copyright 2001 J.K. Henderson, used by permission).

The report characterized the USGS as a natural science and information agency. "Science" has always fit the USGS. The "natural sciences" take us back to the 1870s and 1880s, when the Survey was pulled together and

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Nodes in the News

The creation of regional, thematic, and infrastructure NBII nodes has been a significant development this year. These newsmaking nodes are interconnected entry points that, taken together, are forming the NBII. The nodes are being developed in coordination with various partners around the country. In this summer issue of Access*, we are continuing our profiles of the new NBII nodes.*

The NBII Bird Conservation Node

Public interest in birds is at an all-time high as a result of public participation in recreational activities such as birding and hunting. In the past, birds have also been at the forefront of various environmental issues by serving as indicators of the health of our environment. Because of the ecological, economic, and recreational values of birds, their conservation now ranks as one of our national priorities. In response to the need to conserve birds, a new node has come to roost at the NBII — the NBII Bird Conservation Node. The main focus of this node is to provide Web access to bird population and habitat data used for bird

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In This Issue

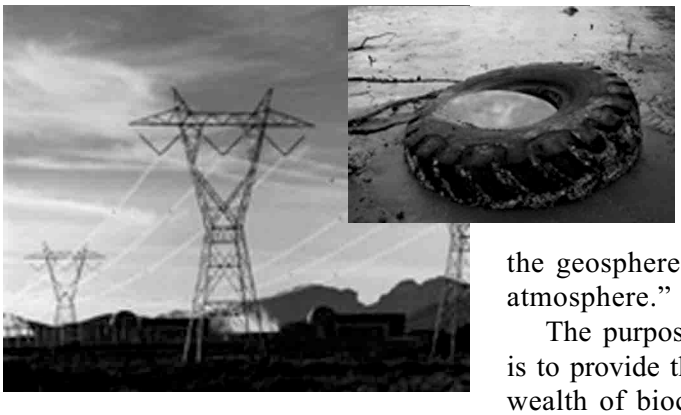
Partners in the Spotlight

"Partners in the Spotlight" highlights the activities and contributions of a wide range of NBII partners. We are pleased to welcome Fred Spangler and CSA as this issue's Partner. If you're interested in producing a similar article about your organization, please contact Ron Sepic, Access *Editor, at <ron_sepic@usgs.gov>.*

The Biocomplexity Collection

The NBII has partnered with CSA (formerly Cambridge Scientific Abstracts) of Bethesda, Maryland, on an ambitious government/private industry project titled Biocomplexity Database Development. Since the term "biocomplexity" is a relatively new term and because there are several slightly varying definitions of it, we will offer our definition and one alternative.

Biocomplexity may be defined as "The study of complex, interdisciplinary processes and interactions between all life-forms and the Earth and its environment." Accordingly, biocomplexity is an immense field of endeavor encompassing nearly all aspects of the biological and environmental sciences.



Biocomplexity is concerned with a wide variety of environmental challenges, including power lines (left) moving across all manner of terrain, and even old tires (right) residing in area lakes, ponds, and rivers.

An alternative but equivalent definition for biocomplexity is "The study of the reciprocal effects of the biosphere on the geosphere, hydrosphere, and atmosphere."

The purpose of the Partnership is to provide the NBII with a wealth of biocomplexity-related information and data through the development of a Biocomplexity megadatabase referred to as the Biocomplexity Collection. The Collection will further the NBII's mission to provide increased access to information on the nation's biological resources and the underlying scientific understanding and technologies needed to support the sound management, use, and conservation of these resources.

All information and data in the Biocomplexity Collection will be made freely available over the Internet via the NBII's BioBot search engine and through other USGS mechanisms of sharing information on the Web. These publicly accessible search and information delivery systems will provide immediate access to the Collection for all NBII constituent groups. The Biocomplexity Collection is designed to serve government agencies, scientific communities, resource managers, educators, students, and the public-at-large.

The digital Biocomplexity Collection will be composed

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Groat Reflects on the NBII...
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was looking at the West and the land, cataloguing and striving to understand the various resources. We were known as an "earth science" organization involved in the geosciences, mapping, geology, and hydrology. In the mid-1990s, when biology became part of the USGS, the term "natural science" organization began to fit in a much stronger way. Now we're integrating all these sciences to provide a comprehensive understanding of our natural resources.

But calling us an "information" agency refers in many ways to the most interesting part of what we do — and also the most challenging. We were in the information business since the beginning of this organization. We conducted surveys resulting in information, in maps, in published reports, and established the basis for monitoring programs, which generated more information. That information was transferred by the techniques of the time to our traditional, technical audiences.

But when we think of information in this decade — and the decades to come – it is in a fundamentally different way from how we have thought of information in the past. Today, "information" represents a broad definition of the word and refers to information that is useful for a wide variety of audiences. It means information presented in the right format and geared to the needs of audiences who haven't traditionally been consumers of our information.

The fact that we're turning out this information in different formats, through different media, means that the information not only has the kind of roles it has had in the past (i.e., scientific and technical information), but now it also has an application for decision making as well as a role in education and communication. Today, models and GIS systems are all part of decision support systems. These can all help the American public at large.

Viewing the USGS as a science organization and an information organization makes a lot of sense. Science and information are not separate. Science is data and information. The communication of science is also information. If we don't effectively communicate — not only to fellow scientists and engineers, but also to the public, to the Administration and

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Three Inducted Into the Loyal Order of the Hymenoptera

On July 10, at the second NBII All-Node Workshop, Dr. Charles "Chip" Groat presented awards inducting three NBII leaders into the Loyal Order of the Hymenoptera, a newly formed honorary organization. The group's inductees were Jack Hill and Bonnie Carroll, Co-Chairs of the NBII Coaltion; and Bob Worrest, Director, U.S. Global Change Research Information Office, Center for International Earth Science Information Network, Columbia University.

Groat presented the three with individual crystal plaques and told them that, through their outstanding work, they are ensuring that the NBII has a solid future.

"Each of these folks is a leader of the NBII Coalition and has carried the NBII message everywhere tirelessly," added Gladys A. Cotter, Associate Chief Biologist for Information at the USGS. One of Ms. Cotter's key responsibilities is overseeing NBII development.

During the All-Node Workshop, attendees were able to tour the Tennessee River Gorge and see the tremendous contributions the Tennessee River Gorge Trust — an NBII partner — is making to the community and the Gorge through its wide-ranging conservation efforts (photo copyright 2001 J.K. Henderson, used by permission).

NBII Partnership With International Association of Fish and Wildlife Agencies Gets Started

NBII partners include federal, state, and international agencies; interagency groups; academia; private industry; and non-government/non-profit agencies. The International Association of Fish and Wildlife Agencies (IAFWA) is one of many groups in the last category and represents states' interests in fish and wildlife management issues.

The NBII has formed a multi-year, cooperative agreement with the IAFWA to increase state conservation agency participation in the NBII as data users and contributors. In early June, the NBII's Jacob (Jake) Faibisch began to lead this effort.

The first phases of this partnership include conducting two focus groups and three planning meetings with state agency personnel, NBII staff, and stakeholders. Jake will work with NBII node leaders and state conservation agencies to match their mutual needs and create a data sharing mechanism benefiting an expanded scope of NBII users that includes state fish and wildlife managers. Fisheries management issues will be an initial, primary focus as part of the NBII Fisheries and Aquatic Resources Node because of the close match to states' ongoing resources management efforts.

Please feel free to contact Jake at any time. His main office is in Washington, D.C., at the IAFWA headquarters. Contact him at (202) 624-7744 at the IAFWA, (703) 648-4185 at the USGS in Reston, or by e-mail at <jacobf@sso.org>. He welcomes your ideas, comments, and suggestions.

Groat Reflects on the NBII... (continued from page 3)

Congress, to managers making decisions about land use, and to the average person in a format they can use — then we are not doing our job.

The NBII is to me an excellent example of how an information capability and the need for information have come together to create a successful program. It's a program that's doing things right. It is effectively making the case for the value of information systems, not only for the scientists and the technology-based people who develop the information, but also in a broader sense. It's also a model of partnerships. Partners are involved in developing the infrastructure and the communication, partners from all sectors — the technical side to the user side.

The NBII works with many programs — such as the Gap Analysis Program, the Vegetation Mapping in the National Parks Program, and the State Heritage Programs — to bring people and resources together to make a program function well. And it's not just biologists and computer experts. It's people who are interested in the application of this information. The NBII is also tied in internationally through the InterAmerican Biodiversity Information Network, the North American Biodiversity Information Network, and the Global Biodiversity Information Facility. What more could one ask from a program that's reaching out all the way from the local government to the international community.

Perhaps most important, the NBII has been able to develop broad sources of support for growth and funding. You have convinced people in Congress and in the Administration that this is a worthwhile program. You have shown people that the NBII is good for their district, that it's good, for instance, for the people of Tennessee. But it's also good for Hawaii and Alaska and other areas. And when people who use your information say it's a good program, as they have, that really sells the value of what you do.

In conclusion, I think the future of information use and transmittal within the whole USGS is in a strong way linked with the kind of successes the NBII has had. You are serving not only your own interests in making the NBII grow, but you're also making the case for the value of technical information and its effective communication for a broader community of users. This is good for the USGS and also good for the country — serving yourselves and the cause of science in general and the USGS as well.

initially of four main components: a large set of timely bibliographic citation records, a set of highly pertinent Web sites, a new bibliographic database, and an extensive Biocomplexity Thesaurus.

As for the first component, in the first year of the Partnership, CSA will make available to the NBII 65,000 biocomplexity-related bibliographic citations. These records will be drawn from more than 20 of CSA's proprietary databases covering the biological, aquatic, and environmental sciences.

Second, over the same timeframe, CSA will supply the Collection with 10,000 biocomplexity-relevant Web sites. These Web sites will be selected, keyworded, and indexed by expert editors and not by computer program.

Third, within the biosphere, the activities of mankind have a disproportionately large impact on the Earth and its environment. This results in the mankind-Nature paradox: "Society as stalwart defender AND pariah of Nature." Accordingly, CSA will create *de novo* a bibliographic citation database to explore human use and misuse of the environment.

This new science-based database is titled "Human Population and the Environment" (HP&E). HP&E will be divided into four supercategories:

- Human Population and Demography
- Human-Nature Interactions
- Societal Issues (such as public health, waste disposal, sustainable development, public policy)
- Monitoring and Quantifying Anthropogenic Processes.

Biocomplexity interests include sources of environmental stress, such as (clockwise from top left): an off-shore rig, pollution from a powerplant, a chemical production facility billowing smoke, and a trash dump.

Once the database is fully operational, CSA will contribute to the NBII 15,000 HP&E records per year.

For the final Biocomplexity Collection component, CSA will create the backbone of an extensive Biocomplexity Thesaurus by melding together all pertinent controlled vocabulary from three of its proprietary thesauri serving the biological, aquatic, and environmental sciences. Human population-related terminology will be added from a fourth CSA thesaurus – representing the sociological sciences.

Additional controlled vocabulary will be derived from newly coined and accepted biocomplexity terminology, from the NBII CERES Thesaurus, and from terms volunteered by experts at NBII Nodes. In future years, the Biocomplexity Thesaurus may be expanded to include geographic terminology and genus-species/common-name taxonomic vocabulary.

CSA <www.csa.com> has been a leader in the indexing and abstracting industry for over 30 years. CSA produces over 75 abstracts databases covering the biological and medical, aquatic, environmental, materials, social sciences, linguistics, computer and information technology, engineering specialties, aerospace, market research, and the arts and humanities. These databases are made available on a subscription basis to customers in print format, online, on CD-ROM, and via the award-winning Internet Database Service.

management and conservation, and promote public awareness of bird conservation issues in North America.

By providing rapid access to baseline data needed to understand how bird populations respond to habitat at various scales, the node will serve as a tool that supports development of management strategies on wild populations of birds, and will assist in the planning and evaluation of integrated bird conservation activities such as the North American Bird Conservation Initiative (NABCI). Byron K. Williams, USGS Representative to the NABCI Federal Subcommittee and Chief, Cooperative Research Units, USGS, says "The network of partners in the North American Bird Conservation Initiative has identified the sharing of data and information about birds as a priority element in continental bird conservation. By facilitating electronic linkages for data and information-sharing among conservation groups, the NBII Bird Conservation Node factors importantly in the development of strategies to achieve the goal of regionally-based biologically driven, landscape-oriented conservation of birds throughout North America."

Osprey (photo courtesy of Photodisc)

The Bird Conservation Node is being developed as a collaborative activity among the USGS Patuxent Wildlife Research Center, the U.S. Fish and Wildlife Service (USFWS) Division of Bird Habitat Conservation and Division of Migratory Bird Management, and the USGS Center for Biological Informatics. These partners provide the node with the expertise needed on bird research, monitoring, and management, as well as information management and delivery. In 2001, the node will emphasize delivery of raw and derived data products held by USGS and USFWS. But as the node grows, it will link to bird data sets and information held by new partners at national, regional, and state levels.

Tundra swans (photo courtesy of John Mosesso, Jr.)

Products for the node under development include a Web site and a prototype mapping application that links a map of North America to databases from the North American Breeding Bird Survey, Colonial Waterbird Survey, Breeding Waterfowl Population and Habitat Survey, and the Atlantic Flyway Mid-winter Waterfowl Survey. The mapping application, currently being developed by the USGS Rocky Mountain Mapping Center, will allow users to adjust interactively the geographic scale of the map to visualize data collection locations for each survey in relation to NABCI's Bird Conservation Regions, political boundaries, and basic land cover, thereby facilitating retrieval of each survey's raw data at the geographic scale that meets the user's specific needs. The Bird Conservation Node Web site and mapping application will be available online at <http://birdcon.nbii.gov> in the fall of 2001.

Mockingbird (photo courtesy of John Mosesso, Jr.)

For additional information on the NBII Bird Conservation Node, please contact Elizabeth Martín, USGS, <elizabeth_martin@usgs.gov>; Bruce Peterjohn, USGS, <bruce_peterjohn@usgs.gov>; or Mark Koneff, USFWS, <mark_koneff@fws.gov>.

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The Southern Appalachian Information Node

To address the ecosystems informatics and biodiversity aspects of information analysis and evaluation within the Southern Appalachian region, the University of Tennessee at Chattanooga (UTC), the University of Tennessee at Knoxville (UTK), Oak Ridge National Laboratory (ORNL), Southern Appalachian Man and the Biosphere (SAMAB), Information International Associates Inc.(IIa), and the NBII have partnered to create the Southern Appalachian Information Node (SAIN).

Jack-in-the-pulpit

Southern Appalachia is one of the most biologically rich areas in the United States and a natural laboratory for developing and testing new approaches to better manage sensitive ecosystems for public use. The foundation of SAIN is a digital inventory of regional biological data, information, and tools that will be made available on the Internet through the biological component of the Southern Appalachian Regional Information System (SARIS). SARIS integrates biological, physico-chemical, and socioeconomic information with multi-agency information leveraging regional resources.

SAIN also takes on a national responsibility to build the integrated access system and clearinghouse to distribute NBII information, and to provide the metadata infrastructure necessary to identify and access NBII data and information across the system. The metadata infrastructure component—using a highly automated software concept, Mercury <http://mercury.ornl.gov>—is consortium-based and leverages on the efforts of other agencies, with NASA being a major sponsor. This reduces costs and development time while retaining Z39.50, Web, XML, and FGDC-biological component standards.

Short- and long-term projects are established to advance SAIN's goals and objectives. Planned projects include:

- A partnership with the Tennessee River Gorge Trust and Chattanooga-Hamilton County Regional Planning Agency with direct participation of the City of Walden, Nolan Elementary School, and the University of Tennessee at Chattanooga to incorporate long-term ecological monitoring information with city growth planning;
- Development of a university curriculum for biology and ecosystem informatics; and
- Creation of a new NBII-wide metadata infrastructure that will replace the existing HTML NBII system with an XML system, and a redesigned Web interface with improved temporal and spatial capabilities.

Indian Creek

Elk

SAIN—one of the regional nodes under development by the NBII—oversaw plans for the second NBII All-Node Meeting. As host of this recent event in Chattanooga, Tennessee (see Dr. Groat's address, our cover story), SAIN developed a program in which representatives from all the nodes got together to share information regarding their growth and development, as well as to discuss common issues and new collaborative projects.

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Nodes in the News
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The Southwest Information Node

The environmental issues facing the Southwest United States are the focus of a new node of the NBII. In the Southwest, federal resource agencies, environmental organizations, businesses, and the public need access to critical biological information to more effectively address the conflicting demands on natural resources.

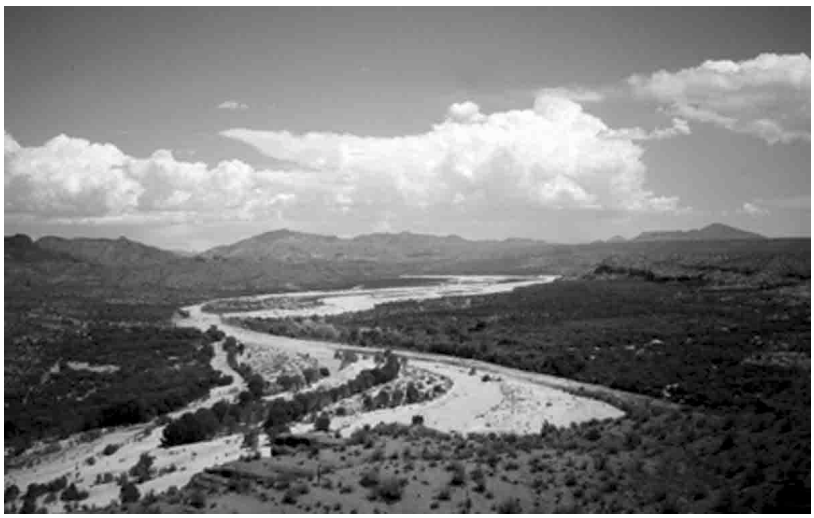
Initially, the NBII Southwest Information Node will be established and supported through a unique partnership between the University of New Mexico, New Mexico State University, the USGS Midcontinent Ecological Science Center, and the USGS Center for Biological Informatics. These partners are leaders in blending science and technology, having earned international reputations for scientific achievement and technical assistance.

The NBII Southwest Information Node will create a Web-access gateway to biological information for the Southwest region. In 2002, node development will focus on New Mexico. However, when fully implemented, the NBII Southwest Information Node will cover issues critical to Arizona, New Mexico, the Mojave Desert, the Colorado Plateau, and West Texas. It will provide access to hundreds of biological databases, and will host a suite of information tools tailored to address the complex issues of the Southwest. These tools will let the users model, simulate, forecast, interpret, and visualize biological and environmental conditions and processes, and will address questions such as:

- Is there enough water to support the current rate of urbanization?
- What land use changes are predicted by 2020 under different water-use scenarios?
- Why does the Southwest have the highest level of species endangerment?
- What areas are at high risk of fire, or high risk of invasive species?

For further information, contact Don O. Hunter, USGS Midcontinent Ecological Science Center, <don_o_hunter@usgs.gov> or Cheryl Williams Levey, USGS Center for Biological Informatics, <cheryl_levey@usgs.gov>.

Top right: Wildfire in the Jemez Mountains, New Mexico; left, flowering cactus; below, Desert tortoise; bottom left, Santa Maria River, Arizona.



LUHNA Explored in *Science*

The Land Use History of North America (LUHNA), an NBII-affiliated program, is one of many U.S. programs and activities that provide NBII customers with geographic perspectives on the nation's biological resources.

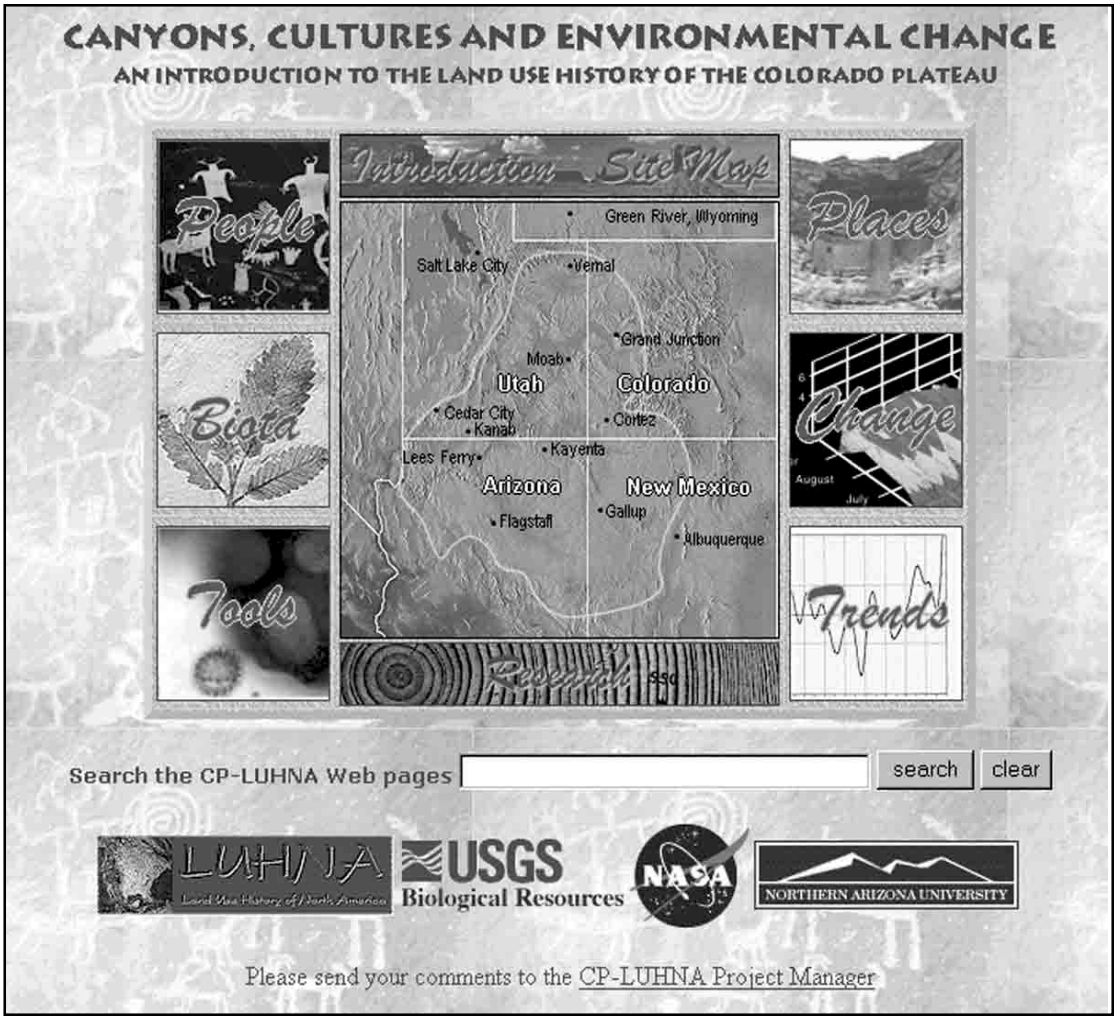
The Land Use History of North America (LUHNA), an NBII-affiliated program, is one of many U.S. programs and activities that provide NBII customers with geographic perspectives on the nation's biological resources. The May 25 issue of *Science Magazine* features a look at LUHNA in the magazine's "NetWatch" section. Here is what they had to say about the Web site:

RESOURCES: The Lowdown on the Colorado Plateau

Centered on the Four Corners of Utah, Colorado, New Mexico, and Arizona, the Colorado Plateau is 337,000 square kilometers of paradox. It's a desert that's also home to the Colorado and Green Rivers; geologically stable, but riddled with eroded canyons; hostile to settlement, but rich in archaeological treasures. Explore the region's past and present at Land Use History of the Colorado Plateau, the brainchild of Thomas Sisk, an environmental scientist at Northern Arizona University in Flagstaff. Sisk's team has built a rich compendium of research from many disciplines for students, scientists, land-use planners, and fans of the Southwest.

Start at one of six main topics—people, places, biota, tools, trends, or change—and create your own journey through the plateau. Learn about the Anasazi people, who built cliff dwellings and kivas before mysteriously disappearing 800 years ago. Find out how scientists use fossilized garbage piles left by packrats to trace past vegetation and animal life. Other sections cover timely topics from fire ecology to the reintroduction of the Mexican gray wolf.

Each entry is an easily digested nugget linked to other pages, including primary research. The site also contains a bibliography of more than 2500 books, articles, and reports. Contributors are experts on the plateau, and their passion is infectious. Please check out the Web site at <www.cpluhna.nau.edu/index.htm>.



International Connections: NBII Partners With International Initiatives

With this issue of Access*, we launch a new regular column, "International Connections," to keep readers updated on all the various biodiversity networking initiatives in which the NBII is involved. While* Access *has included regular reports on activities of the Clearing-House Mechanism ("CHM Connection") and the Inter-American Biodiversity Information Network ("Inside IABIN"), the USGS and its NBII partners are also working with a number of other international initiatives, including the Biodiversity Information Table of the Trilateral [Canada-Mexico-U.S.] Committee for Wildlife and Ecosystem Conservation and Management, the North American Biodiversity Information Network, and the Global Biodiversity Information Facility, as well as thematic initiatives such as the information system envisioned for the Global Invasive Species Program. Look to "International Connections" for news of all of these efforts.*

Copenhagen Selected to Host GBIF Secretariat

At the second Governing Board meeting of the Global Biodiversity Information Facility (GBIF), delegates selected Copenhagen as the location for the GBIF Secretariat, to be established by the end of FY 2001. Eighteen voting members (including the United States) and twelve associate members of GBIF met near Bonn, Germany, in mid-June to consider bids from Australia, Denmark, the Netherlands, and Spain to host the Secretariat. At the same meeting, Dr. John Curran of Australia was elected as Chair of the Science Committee. The Science Committee is seeking experts worldwide to serve on four Science subcommittees: Data Access and Data Interoperability; Electronic Catalogue of Names of Known Organisms; Digitization of Natural History Collections Data; and Outreach & Capacity Building. If you are interested in participating in any of these groups, contact the NBII International Biological Informatics Program <barbara_bauldock@usgs.gov>. For more information, visit the GBIF Web site at <http://www.gbif.org>.

The GBIF will be an interoperable network of biodiversity databases and information technology tools that will enable users to navigate and put to use the world's vast quantities of biodiversity information to produce national economic, environmental, and social benefits. The NBII Program is the U.S. node for the GBIF.

Trilingual Web Site Established for Trilateral Committee

A Web site in English, French, and Spanish has been established to support the Trilateral Committee on Wildlife and Ecosystem Conservation and Management. The prototype Web site, created by the Biodiversity Information Table of the Trilateral Committee, was approved at a recent meeting of the Committee in Ottawa, and the production site in the three languages of the participating countries was launched in July. Visit the Web site at <http://www.trilat.org>.

The Trilateral Committee facilitates and enhances cooperation and coordination among the wildlife agencies of the United States, Mexico, and Canada in projects and programs for the conservation and management of wildlife, plants, biological diversity, and ecosystems of mutual interest.

The United States National IABIN site was recently introduced. You can find it at <www.iabin-us.org>. Stop by at your convenience to see all it offers!

NBII Rolls Out the Welcome Mat with the New Partnership Web Site Design Manual

The NBII now welcomes new Partners with a new tool—the Partnership Web Site Design Manual. The manual was created to make it simple for NBII Partners to produce quality Web content that will complement the NBII site. Easy-to-read instructions advise Partners how to properly develop an NBII Web site and how to format content to Program standards for seamless integration into the NBII network. This integration is facilitated by preformatted templates and software tools provided to all Partners. The NBII's goals in developing the manual are to ensure that all pages are uniform and easy to follow, maintain a network-wide look and feel, and facilitate easy access across the NBII system by users.

NBII Partners are encouraged to utilize Web designers and developers to create their sites. However, the manual should be understandable to anyone familiar with Web navigation, simple HTML language, and rudimentary concepts of Web design. Knowledge of image formats and popular Web design software will make the process easier. Files needed to build nodes will be provided by the NBII Webmaster. In addition, the NBII is happy to assist Partners with any technical challenges related to designing, developing, or serving their pages.

The NBII is the biological layer of the National Information Infrastructure and builds knowledge through Partnerships. With collaboration and cooperation as its guiding principles, the program has blossomed into a multifaceted effort that links diverse, high-quality, biological databases; information products; and analytical tools maintained by NBII Partners.

The NBII offers visibility to its Partners. Their work receives broad exposure as a result of the NBII's national and international following. NBII Partners' data and information reach a more diverse group of customers, in larger numbers, than their organizations can reach alone. The NBII's international biological sites include those of government agencies and biodiversity conservation organizations. Partners also receive direct recognition of their efforts on the NBII by being credited on the pages of their NBII nodes. Each Partner's organization and its contributions are detailed in the NBII site's Partnership section.

Upcoming Events of NBII Interest

Rivers of Knowledge: 9th Special, Health and Law Libraries Conference, Melbourne, Australia.	August 26-29
Data Warehousing Conference & Exposition, New York, NY.	August 28-30
7th Conference on Environmental Science & Technology, Island of Syros, Greece.	September 3-6
Web Search University, Reston, VA.	September 9-11
3rd International Congress of Vector Ecology, Barcelona, Spain.	September 16-21
Communicating the Future: Best Practices for Communication of Science and Technology to the Public, Washington, DC.	September 23-25
The Wildlife Society 8th Annual Conference, Reno/Tahoe, NV.	September 25-29
EUSIDIC (European Association of Information Services) Annual Conference, Baden-Baden, Germany.	October 1-3
11th International Conference on Aquatic Invasive Species, Alexandria, VA.	October 1-4
SER 2001: Restoration Across Borders, Niagara Falls, Ontario, Canada.	October 4-6
Partnering for Results Institute, Baltimore, MD.	October 5-8

NBII Metadata Training

Metadata training workshops prepare participants to create metadata.

Typical two-day workshops include discussion of:

- The Federal Geographic Data Committee's (FGDC) Content Standard for Geospatial Metadata and the Biological Data Profile.
- Metadata creation tools.
- FGDC and NBII Clearinghouses.
- Metadata quality issues.
- Metadata submission.

Shorter workshops may exclude computer-based training.

For current information regarding locations, dates, and metadata training content and training workshops, go to <http://www.nbii.gov/datainfo/metadata/training/index.html>, or contact:

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Rob Dietz, Environmental Scientist, was among the many NBII staff who explained the program to passers-by of all ages — including this inquisitive young student — at the USGS Open House, held last April 27-28, in Reston, VA.

National Biological Information Infrastructure

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